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Cohabitation, Marriage, and 'Sexual Monogamy' in Nairobi

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Abstract

The current study investigates the extent to which sexual exclusivity—the restriction of one's sexual engagements to a single partner—prevails across various marital status, union type, and co-residence categories among Nairobi's poorest residents, slum dwellers. This question is central to the spread of HIV in the increasingly urban and poor, high prevalence countries of sub-Saharan Africa, where transmission is primarily via heterosexual sex. In many circles, sexual exclusivity is considered a prominent feature of the marriage institution. Yet, marriage and cohabitation are often not easily distinguishable in sub-Saharan Africa, meaning that the frequent use, as a proxy, of the "in union" category, which includes married as well as cohabiting persons can, at best, be considered tenuous. Using the 2000 Nairobi Cross-Sectional Slum Survey (NCSS), this paper confirms that marriage is associated with higher reports of sexual exclusivity even in settings where poverty provokes risky behavior. The finding, here, is of lower risk of HIV infection for married respondents, with a smaller effect observed among non-married cohabiters. Converse to the implied benefits of marriage, though, women with co-wives are more likely to report multiple partners. The implications of these findings are discussed.

Keywords

Cohabitation; Marriage; Urban poverty; Sub-Saharan Africa; Sexual exclusivity; HIV/AIDS; Kenya

Introduction

The question of whether sexual exclusivity—the restriction of sexual engagements to a single partner—is the purview of monogamous marriage is implicit in the discourse about the value of marriage. In western countries, sexual exclusivity is considered a prominent feature of the institution of marriage (Nock, 1998). While some like Waite (1995) suggest that cohabitation is associated with lower levels of exclusivity, others like Cherlin (2000) argue that the benefits of marriage, and particularly those that derive from the pooling of resources as well as from economies of scale, may also attach to cohabiting, non-marital unions. Marriage, however, presumably confers enforceable trust that obtains from the public declaration of the relationship by the principals and the attendant commitment of friends and relatives to the cohesion of the union.

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In much of the developing world, and particularly, sub-Saharan Africa, even monogamous marriages remain potentially polygamous (Bledsoe & Pison, 1994; Pebley & Mbugua, 1989), a situation not unrelated to the nature of the marriage transaction through which men (but not women) gain exclusive sexual rights to their spouses (Dodoo, 1998a). Implicit therein is the suggestion that even monogamous marriages may be compromised vis-à-vis the extent of sexual exclusivity, and Watkins (2003) and others have highlighted the elevated risk of HIV infection for married women because of their husbands' extramarital affairs. Contrary to the expectation of female fidelity that derives from the patriarchal marriage arrangements that culturally dispossess women of any sexual rights, recent evidence from Nairobi suggests that very poor married women in urban settings, too, may be flouting the conventions of sexual exclusivity, and doing so at quite high rates (Zulu, Dodoo, & Ezech, 2002). These findings, based on proxy measures of urban poverty because the national level data they lean on do not demarcate urban slum settings, insinuate that the poorest of married women in urban settings are compelled to engage multiple sexual partnerships to help make ends meet for their families.

In the face of these seeming contradictions about poverty, gender, marriage, and sexual behavior, we utilize a unique and hitherto untapped dataset (of actual slum residents) that comprises a representative sample of residents from all the slum communities in Nairobi, Kenya to investigate whether sexual exclusivity prevails across the various marital status and co-residence categories in the poorest of metropolitan settings. In exploring the extent to which married women opt to remain sexually exclusive, rather than adopt risky, HIV-related sexual behaviors in these data—a question central to the discourse on the spread of the disease in high prevalence countries where transmission is primarily via heterosexual sex, and cohabitation, marital instability, and multiple sexual partnerships are relatively high (Blanc, 2001; Raley, 2000)—we speak to whether the idea that marriage affords shelter from risky sexual behavior is a mirage in contexts of extreme poverty.

Background

Marriage and cohabitation are often not easily distinguishable in sub-Saharan Africa, such that the frequent use of the “in union” category, which includes married as well as cohabiting persons can, at best, be considered tenuous. Discerning the complex spectrum of marital types in Africa can be difficult, which is probably why either co-residence or a formal ceremony are frequently employed as a delineator of “in union” status in surveys (Bledsoe & Cohen, 1993). Even in this variegated picture of marriage, women are consistently disadvantaged in the manner in which the payment of bridewealth asymmetrically conveys to men legal rights to the sexual fidelity of their wives (Caldwell & Caldwell, 1990; Comaroff, 1960; Goody, 1973).

Union formation varies greatly across ethnicity and lineage in sub-Saharan Africa. Marriage is typically not reducible to a distinct event, rather being a process that easily take years to complete, depending on the couple's lineage and associated traditions (Meekers, 1992). All of this makes marriage more difficult to capture in surveys. Beyond marriage and cohabitation, visiting unions—where married individuals do not co-reside—and polygamous unions are not uncommon in many parts of sub-Saharan Africa (Meekers, 1992).

Western research on the institution of marriage posits that economic hardship leads to instability in unions (Raley, 2000). The recent spate of research on Kenya's urban poor suggests similar findings, with transactional sex—where one engages in sexual relations in exchange for money, food, or favors to meet their needs—presented as a survival strategy in focus groups discussions by residents of Nairobi's slums (Dodoo, Sloan, & Zulu, 2003; Dodoo, Zulu, & Ezech, Forthcoming; Zulu et al. 2002; Zulu, Dodoo, & Ezech 2003). Further, throughout the region, the distinction between sex work, transactional sex, and sex between romantic partners

is often elusive (Caldwell, Caldwell, & Quiggin, 1989). Greater fragility of unions and higher motivation to engage in transactional sex (Zulu, et al., 2002), comprise two factors that potentially undermine sexual exclusivity in Nairobi. With the rapid rate of growth of urban poor populations (and the increasing prevalence of slums) in sub-Saharan Africa (United Nations, 1998; Zulu et al., 2002), and the uneven distribution of HIV-infection across rural and urban space in Africa, this study of sexual exclusivity bears some significance.

Marriage, co-residence, and union formation in Kenya

Caldwell, Caldwell, and Quiggin (1989, p187) have pointed to a “distinct and internally coherent African system embracing sexuality, marriage, and much else” that centers on the importance of lineage and fertility. With marriage difficult to define (Bledsoe & Cohen, 1993), reviewing how national laws regulate union formation provides useful insight into marriage in Kenya. There are five forms of marriage recognized by Kenyan law: customary, civil, Christian, Islamic, and Hindu (Kenya: Seminar on Marriage, Divorce, and Inheritance, 1996; Mucai-Kattambo, Kabeberi-Macharia, & Kameri-Mbote, 1995). The legal age at which one can enter into marriage is 18 years, or 16 with the consent of a guardian. Despite these regulations, Hindu ceremonies have reportedly united grooms with brides as young as 12 years old. Similarly, under Islamic law puberty implies eligibility for marriage.

Customary law in Kenya assumes that consent to all future sexual activity is given at the time of marriage (Amnesty International, 2002). The implication is that married women may be less able to refuse unwanted sex with their (marriage) partners than can unmarried women not married to their sexual partners. Whether such implied consent applies to cohabitating unions is unclear. Cohabitation, itself sometimes indistinguishable from formal marriage (Bledsoe & Cohen, 1993), is regarded as a step in the marital process and has recently been recognized by the Kenyan courts as being marriage, albeit without a ceremony (Thongori, 2001).

Polygamy

Polygamy is a distinctive feature of African marriage and, although not the dominant form of marriage in Kenya, remains legal under Kenyan law. Although on the decline in recent years in Nairobi—falling from 22 percent in the late 1970's, to 15 percent in 1989, and 11 percent in 1993 (Ezeh, 1997)—there is apparently a growing trend of polygamous men not residing with their wives in urban areas (Ezeh, 1997). This suggests that, increasingly, polygamous women may not co-reside with their spouses and may, thus, lose the benefits of resource pooling and economies of scale from which co-resident partners benefit. Further, the traditional expectations of polygamous marriages are likely diminish in urban areas.

Union dissolution: widowhood, separation, and divorce

Dissolution is an inevitable part of marriage, whether via death or divorce. While union dissolution sometimes ends sexual exclusivity, it is important to assess the circumstances under which exclusivity prevails. It is also plausible that, in the case of widowhood, exclusivity may remain after dissolution; widows have the right to their husbands' property until they remarry, although few rural women actually receive this inheritance in Kenya (Mucai-Kattambo, Kabeberi-Macharia, & Kameri-Mbote, 1995). Indeed, the lack of access to their rightful inheritances has been credited for widows moving to urban locations to seek employment to meet their economic needs.

Kenyan women in monogamous marriages can obtain legal separation or divorce from their husbands on the grounds that the men are alcoholics, drug addicts, have a sexually transmitted disease, have unlawfully caused her injury, or have failed to economically provide for her or their children (Mucai-Kattambo, Kabeberi-Macharia, and Kameri-Mbote, 1995). Under

customary and Muslim law, however, women typically lack the ability to initiate the dissolution of a union.

Sexual exclusivity

Western theories suggest that marriage is an institution through which sexual regulation, among other things, can be achieved (Popenoe, 1993). Public health specialists emphasize that increasing abstinence, sexual exclusivity, and condom use can reduce the sexual transmission of HIV throughout the world (World Bank, 1997; Reinecke, Schmidt, & Ajzen, 1996), and most HIV prevention programs promote this tripartite approach. Increasingly, abstinence and sexual exclusivity are receiving attention and funding as preferred methods of combating the HIV epidemic (Lee, 2002).

Only 1.7 percent of women in Kenya reported multiple sexual partnerships in the 2003 Demographic and Health Survey (ORC Macro, 2005). Despite this low incidence of multiple partnerships, there were clear patterns reported by age, marital status, and rural-urban residence. Slightly fewer females aged 15 to 19 (1.5%) reported sex with more than one partner in the past year than did women aged 40 to 49 (2.0%). Females in urban areas were slightly more likely to report sex with multiple partners in the past year relative to their rural counterparts (2.1% compared with 1.6%). Surprisingly, more ever-married females (2.1%) reported sex with multiple partners in the past year compared to never-married females (0.9%). Finally, while the pattern of sexual activity with more than one partner in the past year by level of education was not linear, females with secondary or higher education reported the lowest levels of sex with more than one partner in the past year (0.8%), followed by females with no education (1.4%). Females with primary incomplete and females with primary complete reported the highest levels of sex with more than one partner in the past year: 2.3 percent.

Presumably, marriage proffers long-term sexual exclusivity such that higher proportions married should be associated with lower levels of HIV risk. Yet, no studies have examined causal linkages between various marital or union types and HIV risk. For women, marital relations may be a principal source of infection. Research in Uganda has shown husbands to be much more likely than wives to introduce HIV into their marital unions (Carpenter et al., 1999; Watkins, 2003). Further, women in sero-discordant marriages—where one spouse is HIV positive and the other not—become infected twice as frequently as men with previously infected spouses.

HIV levels in Kenya

The 2003 Kenya Demographic and Health Survey found that 6.7 percent of the Kenyan respondents aged 15 to 49 years who were tested for HIV recorded a positive result (ORC Macro, 2005). Prevalence rates were nearly twice as high for females than males (8.7% for females and 4.6% for males), with urban rates much higher (7.5% for males and 12.3% for females) than rural rates (3.7% for males and 7.5% for females) (ORC Macro, 2005). The HIV prevalence among women attending prenatal clinics in Nairobi also increased from three percent in 1987, to 16 percent in 1995, before decreasing to 14 percent in 1999 and remaining at that level in 2001 (UNAIDS, 2004). With a cure or vaccine for HIV not yet in sight, behavioral prevention mechanisms remain the only way to combat the epidemic (World Bank, 1997).

Young females in Kenya have higher levels of infection than do their male age mates (Glynn, Buve, Carael, Musonda, Kahinda, Macauley et al., 2001; ORC Macro, 2005). Lesser control over sexual relations, reproductive tracts that are more susceptible to infection than men's, and patterns of sexual networking all contribute to the higher infection rate for women (Ankrah, 1991; UNAIDS, 1999). The potential costs of marriage become acute for women when HIV

prevalence is high and they have difficulties refusing sexual activity or negotiating condom use. This is because they sero-convert more rapidly than do men. Further, despite the notion that sex in marriage is safe, a larger fraction of married women aged 15 to 19 years in Kisumu, Kenya were HIV positive compared to sexually active unmarried young women in the same cohort (Clark 2004). In the face of such costs, exploring the extent to which marriage contributes to preventive behavior for women is useful.

Assessing an exhaustive set of costs and benefits associated with marriage remains beyond the scope of this paper. Nonetheless, we attempt to address one positive feature of marriage: institutionalized sexual exclusivity. We anticipate that married women with co-resident spouses will be the least likely, of all marriage/union types, to violate the sexual exclusivity of their relationships, which should be governed by enforceable trust. The evidence should reflect that married, co-resident principals have the lowest levels of multiple sexual partnerships in the year preceding the survey. Further, because co-residence suggests that partners are better able to monitor each other's activities, there should be less opportunity for spouses to engage other partners without the knowledge of their spouses. Because these data comprise *the* first-ever representative sample of all slum residents in a large African metropolis, the study affords a unique opportunity to explore the relationship between marriage, cohabitation, and sexual exclusivity in a context where poverty is extreme, marital unions are fragile, and educational and health circumstances also mitigate against sexual health and promote conditions for the high prevalence and spread of HIV. The focus on the poorest of the urban poor is salient in the face of the rapidly increasing urban poverty in Africa—by the turn of the millennium more than 60 percent of Nairobi's population already lived in the city's slums (East African Standard, 1998)—and the disproportionate prevalence of HIV in such settings.

Data and Measures

The data for this study come from the 2000 Nairobi Cross-Sectional Slum Survey (NCSS), a representative sample of Nairobi's slum settlements collected by the African Population and Health Research Center (APHRC) between February and June of 2000. Among others, the questionnaire covered various demographic questions including those on household characteristics, marriage/partnership type, fertility preferences, reproductive and sexual history, contraceptive knowledge and use, and immunization and health. Although not exhaustively fashioned after the Demographic and Health Survey (DHS), a goal was for the study to lend comparability to DHS.

All research on sexual behavior faces questions about the validity of the data. In a recent review of the validity of the popular data-collection approaches—biological markers, in-person interviews, self-completion questionnaires, in-depth interviews, and participant observation—Plummer and colleagues (2004) raise issues with all five. The concern of note for in-person interviews was that they proceed too quickly to allow respondents fully process the questions at hand. For self-completion questionnaires, seven percent of responses had an illogical pattern of responses. In participant observations and in-depth interviews, respondents initially hid sexual behavior. Essentially, the various forms of data collection all have shortcomings.

Without biomarkers, the current study is limited to soliciting verbal information from respondents and utilized survey interviewing to do so. Advantages of the survey technique include its ability to reach large numbers of respondents and the representativeness of the sampling approach; in this case, the data are unique, and have utility, in their representation of all slum residents in Nairobi. Counterbalancing these advantages is the question of data validity, which the study sought to address by an intensive training of interviews (who were residents of Nairobi) about the sensitivity of the questions and the sensibilities of poor people and slum residents. Further, the interview teams, working under the umbrella of authority

received from the Office of the President (as well as with Central Bureau of Statistics workers, well-known in the study communities, and who helped with sampling and area enumeration), were introduced to the communities through the local hierarchies, and moved around in the company of designated local community members (in part for security reasons). The intricate training and field-entry process helped ease the interviewers' transition to insider status, and by giving import and national legitimacy to their presence, likely reduced the odds of them receiving invalid responses. Overall, then, the decision to field a survey by APHRC was accompanied by a confidence, borne of an extended presence in the slum settlements prior to the study, that respondents would give meaningful answers, and a desire to reach a large, representative (probabilistic) sample with a survey that could be comparatively analyzed against the then-recent Demographic and Health Survey (DHS).

With Kenya having fielded three DHS studies, and a host of other surveys that ask about sexual activity, in the 12 years prior to the data collection effort that generated data for this paper, it is safe to assume that the study population is one that is well accustomed to questions of the nature studied here. Indeed, the slums receive considerable research attention on sexual and poverty issues from local and international non-governmental organization, as well as from students working on their theses from the local universities.

To reduce the effects of social desirability bias, the individual interviews were conducted in as private a setting as possible and same-sex interviewers interviewed female respondents. Nonetheless, given the close quarters of slum households, the data show that a young child under 10 years of age was present in 21.9 percent of the interviews, while another adult was present in 3.6 percent of interviews. Although there was no significant difference in reporting two or more partners in the past year for those who did not have an adult present (4.7%) versus the entire sample (4.6%), we control for the presence of another adult in our multivariate analysis. Given the likely underreport of multiple sexual partnerships we likely understate the relationship between sexual exclusivity and union type.

The 1999 Kenyan Census served as the basis for drawing the cross-sectional sample of slum residents. A two-stage stratified sampling plan was used: 98 enumeration areas (EA) were selected in the first stage, with 5463 households selected from the EAs in the second stage. Interviewers used Central Bureau of Statistics maps to locate the households selected for interviews, and in each selected one a household questionnaire was administered to identify eligible respondents. All females aged 12 to 49 years, and males aged 12 to 24 years who slept in the selected households in the night preceding the survey were considered eligible for interview.

We limit analysis to ever-married women aged 15 to 49 and to those who identify themselves as being in union. While analysis of the relationship between marriage and sexual exclusivity would optimally include information on men's (or couple's) sexual activity, the survey only interviewed males aged 12 to 25 years, yielding a sample too young to be amenable to studying marriage. We excluded women who married or entered into co-residential unions after 1999 so that union status is consistent with the timing of the measurement of sexual exclusivity. The resulting sample yields information on 1438 married and co-residing women, 142 married but not co-residing women, 87 unmarried cohabiting women, 101 divorced women, 99 widow women, and 157 separated women.¹ Women were also asked whether their partners had other wives. While our data do not allow us to distinguish between the various consensual, traditional,

¹Fourteen women initially reported that they lived with men when they were asked their marital status, and then reported that their partners reside elsewhere. These women were dropped from the study. Women who had previously been co-residing with men, but were no longer doing so were also dropped from our sample. One woman who was co-residing but did not report whether or not she had co-wives was likewise excluded.

formal religious marriages available in Kenya, we are interested in the institution of marriage, which may be promoted by state and nongovernmental agencies as a protective measure.

Indicators

The survey allows us to delineate those who report being married, those who report living with a man, and those who report not being in a union.² We are also able to distinguish women who report having co-wives.³ Those who report not being in a union were further asked whether they have ever been in a union and, if so, whether they were widowed, divorced, or separated. Women who report being in a union were asked whether their partners live elsewhere, or with them.⁴

Respondents were asked to report the number of sexual partners they had in the past year. Sexual exclusivity is measured by the reporting of zero or one sexual partner in the year leading up to the survey. As we are interested in long-term sexual exclusivity and its effects on HIV risk reduction via the limitation of sexual partners, respondents were coded as having two or more partners in the past year if the reported more than one partner, regardless of the concurrent or serial timing of these partnerships. Bivariate analysis shows that 20.8% of divorced women and 20.4% of separated women report more than one partner in the past year, and a Wald test (not shown here) suggested that these two formerly-married statuses be combined.

Our analytical method comprises a logistic regression of the report of multiple (two or more) partners in the year preceding the survey on dummy variables representing the various marital status/union categories, with controls imputed for age; education; socioeconomic status; ethnicity (Kamba, Kikuyu, Luhya [reference category], Luo, and Other [which comprises those identifying as Kalenjin, Kisii, Masai, Meru/Embu, Mijikenda, Somali, Taita-Taveta, and other]); religion (Catholic, Protestant/Other Christian [reference category], and Other religion); and the presence of other adults during the interview.

The 2003 Kenyan Demographic and Health Surveys evidenced that having sex with more than one partner in the past year increases with age. Further, education must be controlled to assess the effects of union type on sexual exclusivity. Finally, while all respondents in this survey are arguably of the lowest socioeconomic status, there are differences among them with respect to their assets, supply of water, materials used in the construction of their houses, etc. As such, we use a principle component analysis of the respondent's amenities and possessions to create an index of the respondent's socioeconomic status.

The multivariate model is as follows:

$$\ln(p / 1 - p) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + e$$

where:

$\beta_1 X_1$ = Married, living separate

$\beta_2 X_2$ = Co-residence (not married)

²Are you currently married or living with a man? (1: married, 2: living with a man, 3: not in union)

³Does your husband/partner have any other wives besides yourself?

⁴We tested whether the addition of marital duration improved our model, first as a linear function and subsequently as a series of dichotomous variables. We found no linear relationship between marital duration and number of partners (OR=0.98, p=0.35). We then created a series of dichotomous variables representing five-year marital duration groups to explore whether marital duration had a non-linear effect. There were no significant differences in number of partners reported by five-year marital duration groups compared to the reference category, those married for four or fewer years (p-values ranged from 0.554 to 0.829). In the interest of a more parsimonious model, we did not include marital duration in our final model.

$\beta_3 X_3$ = Co-wives

$\beta_4 X_4$ = Widowed

$\beta_5 X_5$ = Divorced/separated

$\beta_6 X_6$ = Aged 30 to 49 years

$\beta_7 X_7$ = Secondary or higher education

$\beta_8 X_8$ = Socioeconomic status

$\beta_9 X_9$ = Kamba

$\beta_{10} X_{10}$ = Kikuyu

$\beta_{11} X_{11}$ = Luo

$\beta_{12} X_{12}$ = Other ethnicity

$\beta_{13} X_{13}$ = Catholic

$\beta_{14} X_{14}$ = Other religion

$\beta_{15} X_{15}$ = Other adults present

ε = error term

Sample characteristics

Table 1 indicates that 71.1 percent of our sample is married and co-resident; another 7.0 percent is married but living apart from their spouse; and 4.3 percent is unmarried, but cohabiting. Another 4.9 percent of the sample is widowed, while 12.8 percent is divorced or separated.

Table 1 also shows that the large majority of the sample does not have co-wives (89.3%). The 10.7 percent in polygamous unions is only slightly higher than the national estimate of 9.0 percent (NCPD, CBS, and MI, 1999). Fully 4.6 percent of the sample reported having two or more partners in the preceding year. Although there is little difference in the report of multiple partners by the presence of another adult at the interview, it is plausible that a social desirability bias encompasses the entire setting because of the extremely close quarters in which the interviews took place. Yet, the sample evidences a higher prevalence of multiple sexual partnerships than is found at the national level measured by the 2003 Demographic and Health Survey (ORC Macro, 2005).

Consistent with the national age structure (IDB Population Pyramids, 2002), the sample is quite young, with only 11.2 percent of respondents aged 40 years or above. Slightly more than half the sample (51.8%) is aged 20 to 29 years, while 32.3 percent is aged 30 to 39 years. Very few women (4.7%) are in the 15 to 19 year old category primarily because of the sample selectivity by marriage and cohabitation. Commensurate with its slum origins, the sample exhibits a very low level of educational attainment with 68 percent reporting either no schooling or only primary education.

The sample reflects a diverse ethnic composition: 26.6 percent Luhya, 24.4 percent Luo, 22.8 percent Kikuyu, 15.5 percent Kamba, and 10.7 percent other ethnicities. The majority of the sample is Protestant or of another Christian denomination (65.5%), 28.4 percent is Catholic, and 10.7 percent reported another or no religion.

Results

Number of partners by union formation and background characteristics

Table 2 shows that a greater proportion of divorced or separated women reported two or more sexual partners (20.5%) in the year preceding the survey, compared to women who were cohabitating (11.5%), widowed (11.1%), married and co-resident (1%), or married but living apart (2%). These results are consistent with the notion that marriage conveys greater sexual exclusivity. Similarly, they are in line with the thinking that co-residence may reduce one's freedom to engage in multiple sexual relations, thus increasing exclusivity. Slightly over five percent of women with co-wives reported multiple partners in the year prior to the survey.

A smaller fraction of younger women (aged 15--29) reported two or more partners in the past year (3.2%) than do women aged 30 to 49 (6.3%, $p<0.001$). This is potentially because older women are more likely to be separated or divorced than are younger women. Fewer women with secondary or higher education reported multiple partners in the past year (2.9%) compared to those with primary or no education (5.3%, $p<0.05$).

There were significant differences in the report of two or more partners in the past year by religion, with Catholic women reporting higher levels of multiple partnership in the past year relative to women of other religions (6.4%, compared with 3.9% of Protestant/other Christian, and 2.4% of those reporting another religion, $p<0.05$). The report of multiple sexual partnerships in the year preceding the survey also varied by ethnic group. More Kamba women had multiple partners in the year leading up to the study (6.4%) compared to women of Kikuyu (5.8%), Luhya (3.5%), Luo (3.6%), or other ethnicities (3.6%). As indicated earlier, there was no significant difference in the report of two or more partners in the past year by the presence of other adults at respondent interviews.

Odds ratios of multiple partnerships

Table 3 presents logistic regressions predicting the likelihood of multiple partnerships in the year preceding the study. The reference category for marital/union type comprises women who are married *and* living with their partners, and the model includes dummy variables for those who are: married but living apart from spouses; unmarried but co-residing; widowed; divorced or separated; and in polygamous unions. Bivariate analyses, not shown here, led to the representation of age as two categories: 19 to 29 years (the reference category) and 30 to 49 years. Similarly, given the importance of secondary and higher schooling for a variety of reproductive outcomes, a two-category measure of education is employed. A series of dummy variables capture women's ethnicity, with the largest group represented in the sample (Luhya) serving as the reference category. Religion is also captured by a series of dummy variables, with Protestant/other Christian the reference group. Finally, a binary measure records whether another adult was present during the interview.

Unmarried women were more likely to report multiple partners. Specifically, unmarried cohabiters were 9.5 times more likely to report multiple partners compared to married, co-resident women ($p<0.001$). Widowed (15.50 times) and divorced (31.33 times) women were even more likely to report multiple partnerships. These findings are consistent with those of Cherlin (2000), Nock (1998), Waite (1995), and other Western researchers who theorize that marriage conveys greater sexual exclusivity relative to other union types. Women who are married but residing apart from their spouses are not significantly different from their married, co-resident counterparts insofar as number of sexual partners is concerned. While co-residence may decrease spouses' ability to maintain multiple partners without their partners' knowledge, our results are consistent with the idea that the enforceable trust that comes with marriage promotes sexual exclusivity, and is not undermined by residential separation.

The evidence supports the notion that formerly married women may indeed face less social sanction for having multiple partners. In this vein, widows had lower odds of multiple partnerships than the divorced/separated. Presumably, some widows may depend on their late spouse's family for financial support and therefore face more pressure to abstain from sexual relations. In fact, although not shown here, 30 percent of widows in the sample reported not having engaged in sexual relations in the preceding year, compared to three percent of their counterparts ($p>0.001$).

Women in polygamous unions were four times more likely than their monogamous, cohabiting counterparts to report having two or more partners in the past year ($OR=4.36$ $p<0.01$). This difference was not significant in the bivariate analysis reported in Table 2 probably because that analysis included all women who did not report having co-wives (i.e., it included divorced/separated). After union type is controlled, the relationship between having co-wives and multiple partners becomes apparent. Contrary to our expectation, however, the multivariate results are inconsistent with the thinking that women in polygamous unions are "encumbered" by the more traditional contexts in which polygamy is situated. It may be the case that when men do not maintain sexual exclusivity, this promotes wives' infidelity.

In general, our findings support Waite's (1995) thinking that cohabitation is associated with lower sexual exclusivity compared to marriage, the rationale being that there is no enforceable trust without marriage. Nonetheless, cohabiters ($OR=9.5$, 95% confidence interval=3.95–22.84) remain less likely than women who were divorced or separated to report multiple partners. This is plausibly because the nature of these women's living arrangements allows partners to observe and regulate their sexual behavior. Co-residence may also reflect a higher level of emotional commitment, something we were unable to explore.

While the respondents, by virtue of living in slum settlements, are likely of very low socioeconomic status, we find that the relatively better off (or less poor) ones were less likely to report multiple partnerships ($OR=0.87$, $p<0.043$), a finding consistent with the suggestion that poverty contributes to risky sexual behavior. Despite significant differences in reporting two or more partners by various background characteristics in the bivariate analysis, the multivariate analysis show no differences by level of education, ethnic group, religion, and the indicator of presence of other adults at the interview.

Discussion

Despite governmental, nongovernmental, and multilateral efforts, the prevalence of HIV in Kenya remains quite elevated, and especially so in urban areas where rates are nearly twice as high as in rural areas (9.9% compared with 5.6%, ORC Macro, 2005). Because HIV infection covaries with poverty, this urban estimate is likely an understatement of prevalence in Nairobi's slums. Our analysis focuses on one element of HIV/AIDS prevention—sexual exclusivity—and we explore the extent to which various marital/union types predict sexual exclusivity. Similar to Waite (1995) and others, we find that women in marital unions are more likely to have fewer partners, even here in the poorest of settings.

The finding that women with co-wives are more likely to report multiple partners in the past year is surprising. Yet, it may be unrealistic to expect the traditional expectations of reduced multiple sexual partnerships among polygamous women to prevail in Nairobi's slum settlements. Some studies have found that women in polygamous unions do not resemble those in monogamous unions in terms of contraceptive use and fertility (Dodoo, 1998b; Ezeh, 1997), and our findings suggest that these women differ in their reports of multiple partnerships as well. Unfortunately, our data do not permit exploration of whether the reported number of partners differs for women who are first wives compared to second and higher-order wives.

Wife inheritance, where a widow is expected to marry her brother-in-law after the death of her husband, makes it feasible that women who are second and third wives are widowed. Similarly, many second wives may have been previously divorced and/or widowed, and divorced women may be more likely to have more partners than other married women.

Further, women in polygamous unions may have to share their husbands' incomes with co-wives. The literature has shown that women may use sexual networks to gain access to needed resources (Dodoo, Sloan, & Zulu, 2003; Longfield, Glick, & Waithaka, 2002). Thus, women in polygamous unions may have an elevated need to exploit such networks, and even more so in slums where they are at the highest risk of economic hardship. Likewise, some of these women may be "outside wives," who are not officially married, but identify themselves as such despite their limited access to their "husband's" income (Bledsoe & Cohen, 1993).

While virtually all women in slum communities have extremely low socioeconomic status, our finding that the less well-off were more likely to report multiple partnerships supports the notion that economic hardship lowers sexual exclusivity. This difference by socioeconomic status emphasizes that there are important hardship differences, even among very poor slum residents. Whereas recent research from Nairobi suggests that very poor married women in urban settings engage in multiple sexual partnerships because of financial hardship, we find marriage to still be associated with sexual exclusivity (Zulu, Dodoo, & Ezech, 2002). Women of all union types report multiple sexual partners in the past year; however, married women report the lowest level of multiple partnerships of all the union types.

Although our analysis shows that even poor women behave as would be expected when married, we remain uncertain about how effectively marriage ultimately protects them from HIV infection, and particularly in an environment where nearly half of all *men* had more than one partner in the year leading up to the survey (UNAIDS, 2004). Beyond the evidence that men are more likely to introduce HIV into their marriages (Carpenter et al., 1999; Watkins, 2003), when one considers that women sero-convert more rapidly than men, even married women who are sexually faithful to their partners remain at risk of infection.

Sexual exclusivity, enforceable trust in one's partner, and the protective effects of marriage are likely disproportionately conveyed to men and women. More research is needed to flesh out the marriage/exclusivity relationship for men, which is particularly important due to the sway men hold in sexual decision-making in Africa (Dodoo, 1998b). An improved understanding of the social scripts for men and women's sexual behavior would help AIDS prevention programs better adapt their behavior change messages to local scripts. Qualitative investigations of interaction of sexual scripts and the different types of unions would optimally explore the meaning of marriage and unions to residents of Nairobi's slum settlements and how these unions and sexual exclusivity are contested and negotiated. Further, research on the shelter effects of marriage would profit from studying couples to more precisely gauge the magnitude of gender differences in the protective effects of marriage.

While we find married women to be less likely to have multiple partners than unmarried women, it would not be prudent to promote marriage as protective against HIV until we have more knowledge of the relationship between marriage and men's sexual exclusivity. However, given that women's risks of HIV infection are tied to their husbands' sexual activities and married women are more likely to be faithful to one partner than are unmarried women, future programs aiming to decrease the incidence of multiple partnerships would also benefit from targeting married men. Concurrently, programs should aim to raise levels of condom use and HIV testing among married couples. A myriad of HIV prevention organizations exist in Kenya many of which, like the faith-based organization World Relief, are working to promote fidelity within marriage.

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Table 1

Percentage and frequency distributions of women by union status

	%	N
2+ partners in past year	4.6	92
Union status		
Married, co-residing	71.1	1438
Married, not co-residing	7.0	142
Not married, co-resides	4.3	87
Widowed	4.9	99
Divorced or separated	12.8	258
Has co-wives	10.7	217
Age		
15–19	4.7	96
20–29	51.8	1048
30–39	32.3	654
40–49	11.2	226
Education		
None/Primary	68.0	1377
Secondary or higher	32.0	647
Ethnic group		
Kamba	15.5	313
Kikuyu	22.8	462
Luhya	26.6	538
Luo	24.4	494
Other ethnicity	10.7	217
Religion		
Catholic	28.4	575
Protestant/other Christian	65.5	1325
Other religion	6.1	124
Presence of other adults during interview		
None	96.4	1952
Others present	3.6	72
Total	100.0	(N=2024)

Source: 2000 Nairobi Cross-Sectional Slum Survey (NCSS)

Table 2

Percent of respondents reporting two or more partners by union type and control variables

	2 or more partners	p-value	N
Union type		0.001	
Married, co-residing	1.0		1438
Married, not co-residing	2.1		142
Not married, co-resides	11.5		87
Widowed	11.1		99
Divorced or separated	20.5		258
Has co-wives	5.1	0.695	217
Age			
15–29	3.2	0.001	1144
30–49	6.3		880
Education		0.017	
None/Primary	5.3		1377
Secondary or higher	2.9		647
Ethnic group		0.146	
Kamba	6.4		313
Kikuyu	5.8		462
Luhya	3.5		538
Luo	3.6		494
Other ethnicity	3.6		217
Religion		0.027	
Catholic	6.4		575
Protestant/other Christian	3.9		1325
Other religion	2.4		124
Presence of other adults during interview		0.190	
None	4.7		1952
Others present	1.4		72
Total	4.6%		2024

Source: 2000 Nairobi Cross-Sectional Slum Survey (NCSS)

Table 3

Predicted odds ratios of reporting more than one partner in the past year (N=2024)

	OR	p-value
Union type		
Married, co-residing (reference)	1.00	
Married, not co-residing	1.64	0.443
Not married, co-resides	9.50	0.001
Widowed	15.56	0.001
Divorced or separated	31.33	0.001
Has co-wives	4.36	0.001
Age		
15–29 (reference)	1.00	
30–49	0.93	0.767
Education		
None/Primary (reference)	1.00	
Secondary or higher	0.91	0.747
Ethnic group		
Kamba	1.49	0.267
Kikuyu	1.33	0.391
Luhya (reference)	1.00	
Luo	1.32	0.448
Other ethnicity	1.32	0.576
Religion		
Catholic	1.39	0.175
Protestant/other Christian (reference)		
Other religion	0.51	0.330
Socioeconomic status (continuous variable)	0.87	0.043
Presence of other adults during interview		
None (reference)	1.00	
Others present	0.20	0.121
Log likelihood	−281.08442	

Source: 2000 Nairobi Cross-Sectional Slum Survey (NCSS)